

THAT WHICH IS CLAIMED IS:

- 1.
- 5 A method of operating a mobile terminal providing wireless communications, the method comprising:
- receiving communications service from a first communications network providing service over a first coverage area;
- while receiving communications service from the first communications network, receiving a first identity code from a second
- 10 10 communications network providing service over a plurality of second coverage areas wherein a first one of the second coverage areas includes the first coverage area and wherein the first identity code from the second communications network identifies availability of service with the second communications network in the first one of the second coverage areas;
- 15 15 after loss of communications with the first communications network, receiving a second identity code from the second communications network; and
- when the second identity code from the second communications network is different than the first identity code from the second
- 20 20 communications network, performing a registration with the second communications network so that communications service can be received by the mobile terminal from the second communications network in a second one of the second coverage areas corresponding to the second identity code from the second communications network.
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2. The method according to Claim 1 wherein the following also is performed after loss of communications with the first communications network:
- when the second identity code from the second communications
- 30 30 network is the same as the first identity code from the second communications network, receiving communications service from the

second communications network in the first of the second coverage areas without performing a registration with the second communications network.

3. The method according to Claim 1 wherein the first
5 communications network comprises a terrestrial communications network.

4. The method according to Claim 3 wherein the first
communications network comprises a cellular terrestrial communications
network.

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5. The method according to Claim 1 wherein the second
communications network comprises a satellite communications network.

6. The method according to Claim 5 wherein service for
15 each of the second coverage areas is indicated by a respective satellite
antenna spot beam and wherein each respective satellite antenna spot
beam is identified by a respective identity code.

7. The method according to Claim 6 wherein performing a
20 registration with the second communications network comprises
transmitting a location update request message using a satellite antenna
spot beam identified by the second identity code.

8. The method according to Claim 1 wherein receiving
25 communications service from the first communications network comprises:
receiving a first identity code from the first communications network;
after receiving the first identity code from the first communications
network, receiving a second identity code from the first communications
network; and
30 when the first identity code from the first communications network
and the second identity code from the first communications network are

different, transmitting a location update request to the first communications network.

9. The method according to Claim 8 wherein when the
5 first identity code from the first communications network and the second
identity code from the first communications network are the same,
communications service from the first communications network is
maintained without transmitting a location update request to the first
communications network.

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10. The method according to Claim 8 wherein the first
coverage area comprises a plurality of paging areas, wherein each paging
area corresponds to a respective identity code from the first
communications network.

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11. A mobile terminal providing wireless communications,
the mobile terminal comprising:

- a receiver that receives communications from a first communications
network providing service over a first coverage area and a second
20 communications network providing service over a plurality of second
coverage areas wherein a first one of the second coverage areas includes
the first coverage area, wherein while receiving communications service
from the first communications network, the receiver receives a first identity
code from the second communications network, wherein the first identity
25 code from the second communications network identifies availability of
service with the second communications network in the first one of the
second coverage areas, and wherein after loss of communications with the
first communications network, the receiver receives a second identity code
from the second communications network; and
- 30 a transmitter coupled to the receiver wherein when the second
identity code from the second communications network is different than the
first identity code from the second communications network, the transmitter

performs a registration with the second communications network so that communications service can be received by the receiver from the second communications network in a second one of the second coverage areas corresponding to the second identity code from the second

5 communications network.

12. The mobile terminal according to Claim 11 wherein when the second identity code from the second communications network is the same as the first identity code from the second communications

10 network, the receiver receives communications service from the second communications network in the first of the second coverage areas without performing a registration with the second communications network.

13. The mobile terminal according to Claim 11 wherein the

15 first communications network comprises a terrestrial communications network.

14. The mobile terminal according to Claim 13 wherein the first communications network comprises a cellular terrestrial

20 communications network.

15. The mobile terminal according to Claim 11 wherein the second communications network comprises a satellite communications

25 network.

16. The mobile terminal according to Claim 15 wherein service for each of the second coverage areas is provided by a respective satellite antenna spot beam and wherein each respective satellite antenna spot beam is identified by a respective identity code.

30 17. The mobile terminal according to Claim 16 wherein performing a registration with the second communications network

comprises transmitting a location update request message using a satellite antenna spot beam identified by the second identity code.

18. The mobile terminal according to Claim 11 wherein the
5 receiver receives a first identity code from the first communications
network, wherein after receiving the first identity code from the first
communications network, the receiver receives a second identity code from
the first communications network, wherein the processor compares the first
identity code from the first communications network and the second identity
10 code from the first communications network, and wherein when the first
identity code from the first communications network and the second identity
code from the first communications network are different, the transmitter
transmits a location update request to the first communications network.

15 19. The mobile terminal according to Claim 18 wherein
when the first identity code from the first communications network and the
second identity code from the first communications network are the same,
communications service from the first communications network is
maintained without transmitting a location update request to the first
20 communications network.

20. The mobile terminal according to Claim 18 wherein the
first coverage area comprises a plurality of paging areas, wherein each
paging area corresponds to a respective identity code from the first
25 communications network.

21. A method of forwarding calls to a dual-mode mobile
terminal providing communications with a terrestrial communications
network and a satellite communications network, the method comprising:
30 storing a location identifier for the dual-mode mobile terminal
wherein the location identifier identifies a location within which the mobile

terminal has been most recently registered for communications service with the terrestrial communications network; and

- after loss of communications between the dual-mode mobile terminal and the terrestrial communications network, identifying for the
- 5 satellite communications network the location within which the dual-mode mobile terminal has been most recently registered for communications service with the terrestrial communications network.

22. The method according to Claim 21 wherein the
10 location identifier comprises a visitor location register for a local area station of the terrestrial communications network.

23. The method according to Claim 21 wherein the
location is identified to the satellite communications network responsive to
15 receiving a detach message from the dual-mode terminal at the terrestrial communications network wherein the detach message indicates that the mobile terminal is detaching from the terrestrial communications network.

24. The method according to Claim 21 further comprising:
20 transmitting a call page to dual-mode mobile terminal at the location corresponding to the location identifier for the dual-mode mobile terminal wherein the location is identified to the satellite communications network responsive to failing to receive a response to the call page from the dual-mode mobile terminal.

25. The method according to Claim 21 wherein identifying
the location within which the dual-mode mobile terminal has been most
recently registered for communications service with the terrestrial
communications network comprises translating the location identifier to a
30 corresponding geographic location.

26. A mobility management system that forwards calls to a dual-mode mobile terminal providing communications with a terrestrial communications network and a satellite communications network, the mobility management system comprising:

- 5 a memory that stores a location identifier for the dual-mode mobile terminal wherein the location identifier identifies a location within which the mobile terminal has been most recently registered for communications service with the terrestrial communications network; and
 - a signal generator wherein after loss of communications between
- 10 the dual-mode mobile terminal and the terrestrial communications network, the signal generator identifies for the satellite communications network the location within which the dual-mode mobile terminal has been most recently registered for communications service with the terrestrial communications network.

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27. The mobility management system according to Claim 26 wherein the location identifier comprises a visitor location register identification for a local area station of the terrestrial communications network.

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28. The mobility management system according to Claim 26 wherein the signal generator identifies the location to the satellite communications network responsive to receiving a detach message from the dual-mode terminal at the terrestrial communications network wherein 25 the detach message indicates that the mobile terminal is detaching from the terrestrial communications network.

29. The mobility management system according to Claim 26 further comprising:

30 a call page forwarding generator that forwards a call page to the dual-mode mobile terminal at the location corresponding to the location identifier for the dual-mode mobile terminal wherein the signal generator

identifies the location to the satellite communications network responsive to failing to receive a response to the call page from the dual-mode mobile terminal.

5 30. The mobility management system according to Claim 26 wherein identifying the location within which the dual-mode mobile terminal has been most recently registered for communications service with the terrestrial communications network comprises translating the location identifier to a corresponding geographic location.

10 31. A wireless communications terminal comprising:
 a receiver that receives signals transmitted from first and second network types wherein the receiver decodes a first signal identity code transmitted by the first network type and wherein the receiver decodes a second signal identity code transmitted by the second network type; and
 a memory coupled with the receiver wherein the memory stores the first signal identity code in association with the second signal identity code when both the first and second identity codes are decodable by the terminal at a common location.

20 32. The terminal of Claim 31 wherein the first network type comprises a terrestrial communications network and wherein the second network type comprises a satellite communications network.

25 33. The terminal of Claim 31 further comprising:
 a transmitter that transmits a location update request message to a station of the first network type when a subsequently decoded first signal identity code is different than the previously decoded first signal identity code stored in the memory.

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34. The terminal of Claim 31 further comprising:
a transmitter that transmits a location update request message to a station of the second network type when no first signal identity code can be decoded and a subsequently decoded second signal identity code is
5 different than the previously decoded second signal identity code stored in the memory.

35. The terminal of Claim 31 wherein the first signal identity code comprises a cellular paging area identity code.

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36. The terminal of Claim 31 wherein the second signal identity code identifies one of a plurality of antenna beams in a satellite communication network radiating multiple antenna beams in different directions.

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- ~~37.~~ A dual-mode wireless communications network including a wide-area coverage network including wide-area coverage network stations and a local-area coverage network including local-area coverage network stations providing service to mobile communications terminals, the dual-mode wireless communications network comprising:
a visitor location register associated with the local-area stations wherein the visitor location register registers which of the mobile communications terminals are currently reachable via an associated local-area station and that registers when a mobile has detached from the local-area coverage network;
a home location register associated with each mobile communications terminal wherein the home location register records a current visitor location register with which the respective mobile communications terminal is registered or a visitor location register from which the respective mobile communications terminal last detached; and
a signaling channel that exchanges information between the wide-area network and the local-area network and that provides the wide-area

network with na identity of a visitor location register and associated local area station with which a particular mobile communications terminal last registered or from which the particular mobile communications terminal last detached.

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38. The dual-mode network of Claim 37 wherein the wide-area network comprises a satellite communications network, and wherein the local-area network comprises terrestrial cellular communications network including ground-based cellular base stations.

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39. The dual-mode network of Claim 37 further comprising:
a mobility management processor that receives the visitor location register and associated local-area station identity and that translates the local-area station identity to a corresponding indicated geographic location
15 region of the wide-area network within which the associated local-area station lies.

40. The dual-mode network of Claim 39 further comprising:
a call processor for processing requests from the public telephone
20 network or from the internet to send data to or receive data from a selected one of the mobile terminals, the call processor directing a paging message addressed to the selected mobile terminal to be transmitted via the local area station indicated by a visitor location register indicated by the home location register associated with the selected mobile terminal, or the call
25 processor directing a paging message addressed to the selected mobile terminal to be transmitted by a station of the wide-area network that covers the geographic area indicated by the mobility management processor.

41. The dual-mode wireless communications network of
30 Claim 40 wherein the call processor directs the paging message to the wide-area network when the selected mobile terminal is recorded as having detached from the local area network.

42. The dual-mode wireless communications network of
Claim 40 wherein the call processor directs the paging message to the
wide-area network when the selected mobile does not respond to a paging
5 message previously transmitted via the local area network.